

Citation for published version:

Aldridge, V, Helen, S & Paskell, R 2019, 'Investigating the relationship between guilt and shame proneness and moral injury in veterans that have experienced active deployment', *Military Behavioural Health*, vol. 7, no. 1, pp. 83-91. <https://doi.org/10.1080/21635781.2019.1580641>

DOI:

[10.1080/21635781.2019.1580641](https://doi.org/10.1080/21635781.2019.1580641)

Publication date:

2019

Document Version

Peer reviewed version

[Link to publication](#)

This is an Accepted Manuscript of an article published by Taylor & Francis in *Military Behavioral Health* on 08/03/2019, available online: <https://www.tandfonline.com/doi/full/10.1080/21635781.2019.1580641>

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Title: Investigating the relationship between guilt and shame proneness and moral injury in in veterans that have experienced active deployment.

Short title: PTSD, Guilt, Shame and Moral Injury

Vicky Aldridge*¹ , Helen Scott² , and Rachel Paskell³

1 Staffordshire University

2 Staffordshire University

3 Avon and Wiltshire Partnership Trust

*Corresponding author information: Helen Scott, Staffordshire University, College Road, University Quarter, Stoke-on-trent, Staffordshire, England, ST4 2DE (email: h.scott@staffs.ac.uk)

Rachel Paskell, Avon and Wiltshire NHS, Bath NHS House Combe Pk, Bath, England, BA1 3QE (email: rachelpaskell@nhs.net)

Abstract

Moral injury accounts for the complexity of symptoms evident in military personnel which go beyond the post-traumatic stress disorder (PTSD) diagnosis. This study sought to investigate the relationship between guilt and shame proneness and exposure to morally injurious events in a sample of British military veterans ($n = 104$). Participants were recruited through a social media site and completed an online battery of self-report measures. Participants were male ($n=99$) and female ($n=5$) with a mean age of 47 years. Fifty-one percent of participants achieved scores on a measure of PTSD which would indicate a probable PTSD diagnosis. Results yielded no significant relationship between guilt and shame proneness and exposure to morally injurious events. There was however a significant relationship between PTSD and morally injurious events, accounting for 43% of the variance, with a medium effect size. When working with veterans with PTSD clinicians need to be assessing for exposure to morally injurious events in order to tailor interventions successfully. Future research should look to establish an evidence base for psychological interventions for those that have experienced morally injurious events. Closer consideration of contributing factors, such as type of trauma and historical trauma is also needed to develop the construct further.

Key words: PTSD, moral injury, morally injurious events, guilt, shame, military, veteran.

Military personnel leave the Armed Forces and return to civilian life for a variety of reasons and it is not only the visible physical wounds of war that can cause veterans difficulty. Invisible wounds, such as post-traumatic stress disorder (PTSD) create casualties of a different kind (Tanielian, 2009). In 2016 the Ministry of Defence released a bulletin summarising all

discharges across military services, within this it identified those discharged for mental health difficulties, of which PTSD was the highest contributor (Ministry of Defence, 2016).

It is a concern that only half of UK veterans with mental health problems seek help from the National Health Service (NHS) (NHS England, 2016). This may in part be due to PTSD symptoms which lead them to avoid social interaction or feel ashamed of their experiences, but also veterans' perceptions of how society will view them and the stigma associated with a mental health diagnosis (Mittal et al., 2013). The NHS recently published clear recommendations for more effective care pathway for veterans, which focus on competent assessment and specialist interventions, particularly for difficulties relating to trauma (Bashford, Hasan & Patel, 2016).

Combat is a unique experience whereby trauma exposure not only derives from direct conflict and fearing for one's safety, but can also occur when personnel are faced with severe ethical and moral challenges (Litz et al., 2009). In these circumstances the major stressor is the moral decision making. Results from a United States (US) survey of soldiers and Royal Marines serving in the Iraq War identified further moral dilemmas, including being responsible for the death of a non-combatant and witnessing wounded or ill women and children that they were unable to assist (Hoge et al., 2004). Military specific studies have found PTSD to correlate with events such as these, as well as participation in or witnessing atrocities and the loss of close friends (Currier & Holland, 2012), highlighting some of the unique diverse contexts in which trauma may occur during combat.

Moral injury is a relatively new concept in psychological practice that has developed to account for the difficulties veterans and serving personnel present with after having to betray moral codes and act outside of their own moral beliefs (Tick, 2005). Litz et al. (2009) define moral injury as perpetrating, failing to prevent, bearing witness to or learning about acts that transgress deeply held moral beliefs and expectations. The concept has, therefore, developed

from the assumption that all individuals have pre-existing internalised standards of ethical behaviour or schemas (Drescher et al., 2011). Essentially the term reflects an injury to the person's moral belief system and their internal struggle to accept an 'imperfect self' (Currier et al., 2015).

The development of moral beliefs or values occurs at an early age and is taught and reinforced continuously throughout life (Litz et al., 2016), even society is based on moral values which indicate what it means to be civilised. Literature often refers to an internal 'moral compass' which dictates whether behaviour is right or wrong (Dombo, Gray & Early, 2013). In Kohlberg's (1969) stages of moral development, the fourth stage refers to maintaining social order, within this Kohlberg surmises that individuals abide by moral values in order to avoid feelings of guilt. It is argued that guilt and shame motivate moral development, moral behaviour and moral judgement (Eisenberg, 2000; Knez & Nordhall, 2017) and therefore the experiencing of guilt and shame in the context of a moral injury is not surprising. Distressing levels of guilt and shame have been identified as possible indicators of the presence of moral injury in a veteran population (Farnsworth, Drescher, Nieuwsma, Walser & Currier, 2014).

Guilt is identified as a negative evaluation of a specific behaviour, and is associated with remorse and regret over a perceived transgression (Tangney, Stuewig & Mashek, 2007). Research with veterans highlights that guilt is often accompanied by the belief that they should have acted, thought or felt differently based on their own internal set of standards about what is right and wrong (Kubany, 1994). Guilt and shame are two distinct emotional responses. Shame, in contrast, involves a negative global evaluation of the core self that is commonly accompanied by feelings of worthlessness, powerlessness and vulnerability (Tangney et al., 2007). Previous research has surmised that guilt is a less painful emotion (Leskela, Dieperink & Thuras, 2002) and that shame is more damaging to the individual (Farnsworth et al., 2014) because of the impact on the self and identity.

Being prone to experiencing guilt and shame is something that has raised interest in psychological literature and is said to vary between individuals, with some being more prone to guilt where others are more prone to experiencing shame (Tangney, 1990). One sample of war veterans found for example, that shame proneness positively correlated with a greater severity of PTSD where guilt proneness was not (Leskela et al., 2002). In different samples guilt proneness has also been found to be a salient predictor of a greater severity of post-traumatic stress symptoms (Doggett, 2018), whilst shame-proneness has been found to be strongly associated with anxiety symptoms (Candea & Szentagotai-Tata, 2018). It has been argued that because shame is central to moral injury then individuals more prone to experiencing shame may be more at risk of developing such difficulties (Delima-Tokarz, 2017). Whilst to date this theory has not been explored further, it identifies the need to investigate the concepts of guilt and shame proneness in the context of moral injury and PTSD.

The majority of existing literature on moral injurious events and PTSD is US based however, the rates of PTSD are reported as being higher in US military populations when compared to UK personnel (Iversen et al., 2008). Research into British military and veteran populations is therefore crucial. The aim of this study was to extend what is known about exposure to morally injurious events in a UK veteran sample. The specific hypothesis was that there would be a significant positive relationship between exposure to morally injurious events and guilt and shame proneness. A measure of PTSD was also included as an indicator of the presence of PTSD in the sample population. It was anticipated that a greater severity of PTSD symptoms would have a significant positive relationship with exposure to morally injurious events.

Method

Design

A cross-sectional design using internet-mediated research was used to quantitatively explore the research question. To determine the required sample size a power calculation using G*power (Faul, Erdfelder, Buchner & Lang, 2009) was completed. In order to achieve power of 0.80 (Cohen, 1992) with an alpha value of 0.05 for a medium effect size (0.15), 103 participants were required for regression analyses. A medium effect size was identified based on previous quantitative moral injury research (Currier et al., 2015).

Participants were asked to report their age, gender, length of time in service and to disclose if they had had previous therapy for any symptoms which had occurred as a result of an experience they had had during their military service. Therapy was defined as five or more sessions with a mental health professional in line with NICE guidelines (2005) which identified five therapy sessions to be effective in reducing post-traumatic symptoms.

Length of time in service was coded as either 0-4 years or over 4 years. This was coded in order to be able to identify those individuals whom were early service leavers (under four years) compared to those completing their minimum length of service. Early service leavers more commonly report mental health difficulties and have been shown to be at an increased risk for probable post-traumatic stress disorder (Buckman et al., 2012).

Participants

Participants were veterans that had previously served in the British Army, Royal Navy or Royal Air Force and had experienced active deployment. Active deployment was defined as being exposed to active war experience during military service. Only those who served within the British forces (Royal Navy, Army, Royal Air Force) were eligible to take part, which ensured that the lived combat experience was reflective of those who served as part of the British forces only. Participants were both male (n=99) and female (n=5) with a mean age of 47 years (SD = 10.8; range = 19-71). The gender ratio was a little lower than that within the military, recent statistics have identified that women account for around 10% of current serving

personnel (Dempsey, 2018). Fifty-one percent of participants met the criteria for PTSD. Participant demographics and descriptive statistics can be found in Table 1. Participants were excluded if they could not speak and read English due to a lack of translational resources. Anyone under the age of 18 years was also excluded.

Procedure

Ethical approval was gained from [edited out for blind review] ethics committee. Participants were recruited from the general population, through the social media site known as Facebook. Participant consent forms and an information sheet were included at the beginning of the online assessment battery. Consent was obtained in line with Ethical Guidelines for Internet-mediated Research (British Psychological Society, 2013). The data collection period ran from 1st February 2017 to the 30th November 2017 inclusive.

Advertisements for the project were in the form of a short ‘post’ followed by a link advertised on the researcher’s research page on social media. The link was made available for Facebook users to ‘share’ and formed the basis of a snowballing recruitment method. The link was also advertised through crowdsourcing, whereby the principal researcher shared the link on other Facebook pages and groups specific to veterans, PTSD and/or the military and where permission from the administrative representative was sought.

The online battery of questionnaires was accessed via a link on Facebook and hosted by the online survey software program called Qualtrics software, (Qualtrics, 2018) which is licensed for use by [edited out for blind review]. The questionnaire was anonymous in that no participant identifiable information was collected. Participants could complete the questionnaire at a time convenient to them and it took, on average, 10 minutes to complete.

Measures

All of the measures used were freely available online.

Moral Injury Questionnaire – Military Version (MIQ-M; Currier, Holland, Drescher, & Foy, 2015). This is a 19 item measure which assesses exposure to morally injurious events. Questions include for example; ‘I did things in the war that betrayed my personal values’, and ‘There were times in the war that I saw/engaged in revenge/retribution for the things that happened’. The MIQ-M has been evaluated on a military population of 131 Iraq and/or Afghanistan veterans with higher scores (indicative of more morally injurious events) correlating with greater combat exposure ($p = .63$), impairments in social/work functioning ($p = .42$), posttraumatic stress ($p = .65$) and depression ($p = .39$) (Currier et al., 2015), providing evidence for the validity of the measure. Analysis of reliability in the current study identified the MIQ-M as having a good (George & Mallery, 2003) level of internal consistency ($\alpha = .87$).

PTSD Checklist – Military Version (PCL-M; Blanchard, Jones-Alexander, Buckley & Forneris, 1996). The PCL-M is a 17 item self-report measure which assesses the 20 DSM-IV symptoms of PTSD and was chosen due to its specific focus on military experience. Example questions include; ‘Suddenly acting or feeling as if a stressful military experience were happening again’ and ‘Repeated, disturbing memories, thoughts, or images of a stressful military experience from the past’. With a military population the PCL-5, which the PCL-M is derived from, was found to have a Cronbach’s alpha value of .95 (Wortmann et al., 2016) and the PCL-M a kappa score of .64 (Weathers, Litz, Herman, Huska & Keane, 1993). Based on previous research the cut off score on the PCL-M for predicting a PTSD diagnosis is 50 (Leskela et al., 2002). This score was applied when considering the percentage of participants that would likely meet a diagnosis of PTSD. The PCL-M demonstrated an excellent (George & Mallery, 2003) level of internal consistency in the current study ($\alpha = .96$).

Test of Self-Conscious Affect (TOSCA; Tangney, Wagner, & Gramzow, 1989). The TOSCA is an 11 item measure which assesses guilt and shame proneness across three

subscales of shame self-talk, guilt self-talk and blaming others. The TOSCA has previously been used with a military population using only the shame and guilt proneness subscales (Leskela et al., 2002). It asks questions such as; ‘you make plans to meet a friend for lunch. At five o’clock you realise you have stood your friend up’. Respondents are then asked to rate, on a scale from 1 ‘not likely’ to 5 ‘very likely’, each of the following possible responses: a) you would think ‘I’m inconsiderate’ b) you’d think you should make it up to your friend as soon as possible c) you would think ‘my boss distracted me just before lunch’. Higher scores denote a greater propensity towards experiencing guilt/shame. Internal consistency scores for shame and guilt proneness have been identified as .76 and .66 respectively (Gramzow & Tangney, 1992). In the current study the guilt proneness subscale yielded an acceptable (George & Mallery, 2003) level of internal consistency ($\alpha = .71$) as did the shame proneness subscale ($\alpha = .75$).

Data analysis

The analyses were conducted using the statistical software package SPSS version 25 for Windows (IBM Corporation, 2017). The data resulted in an overall score for each of the measures and subscales. There was no missing data and, therefore, all 104 participants’ data were used in the initial analyses.

Prior to carrying out the regression analyses, the statistical assumptions required for regression were checked. These included the residuals, normality, linearity and homoscedasticity. TOSCA Guilt was the only variable found to violate checks for normality, being positively skewed and with three significant outliers. A Kolmogorov-Smirnov test was also run. Overall, this suggested that the distribution of the sample differed significantly from a normal distribution (Field, 2005), and therefore caution should be taken in interpreting the findings in relation to this variable. In response, the regression analyses were conducted with and without the outliers to determine the effect that the outliers had on the overall model, this

made no difference to the precision of the model. Bootstrapping was also performed on both multiple regressions to determine the effect, though, again, this made little difference to the model. Taking this into account, it was anticipated that the degree of violation could be handled by the robustness of the model.

Results

The mean, standard deviation and range for each variable can be found in Table 2. As part of the regression analyses, correlations among all of the variables were examined, these can be found in Table 3. There was a strong positive correlation between the measure of moral injury (MIQ-M) and PTSD (PCL-M) ($r = .65$). Therefore, as scores on the MIQ-M increase, so do scores on the PCL-M. There was a very weak negative correlation between the Guilt proneness (TOSCA Guilt) and the MIQ-M ($r = -.06$) and a weak positive correlation between Shame proneness (TOSCA Shame) and the MIQ-M ($r = .33$).

A standard multiple regression analysis was conducted with all variables being added to the model. Predictor variables were PCL-M, TOSCA Guilt and TOSCA Shame. Criterion variable was MIQ-M with the following demographic variables also being included to explore any confounding effect: age, gender, length of service and previous psychological therapy. Regression coefficients for the dependant and predictor variables can be found in table 4. PTSD (PCL-M) and guilt proneness (TOSCA Guilt) yielded a significant relationship with exposure to morally injurious events (MIQ-M). This model accounted for 47% (R^2) of the variance, 43.1% (R^2 Adjusted). Age, Gender, Length of Service, Previous Therapy and shame proneness did not result in a significant relationship. When running the regression model with only the significant variables (PCL-M and TOSCA Guilt) in order to improve precision of the model, guilt proneness was no longer significant. This model accounted for 44% (R^2) of the variance, 43% (R^2 Adjusted) regression coefficients can be found in table 5. Evidence from other quantitative studies investigating theories of moral injury have reported models accounting for

35% (R^2) of the variance, 13% (R^2 Adjusted) (Bryan, Bryan, Morrow, Etienne, & Ray-Sannerud, 2014). In comparison this suggests that PTSD is a strong variable in this relationship.

Discussion

Summary of findings

The aim of the current study was to investigate the relationship between guilt and shame proneness and exposure to morally injurious events. We also investigated the presence of PTSD in the sample population due to the identified link between morally injurious events and PTSD in previous literature. The specific hypothesis tested was that there would be a significant relationship between guilt and shame proneness, PTSD symptoms, and exposure to morally injurious events in military veterans that had experienced active deployment. The findings indicated that there was a significant relationship between PTSD and exposure to morally injurious events. This is consistent with previous literature (Currier et al., 2015; Drescher et al., 2011). The hypotheses that guilt and shame proneness would predict moral injury was not supported.

This was the first study to investigate PTSD and exposure to morally injurious events through a quantitative methodology in a British veteran population. Investigation into the concept of moral injury outside of the US has previously been identified as a direction for future research (Allenby & Frame, 2017). The significant relationship between PTSD and moral injury has been identified in a US veteran population (Currier et al., 2015). Thus, the findings here may indicate a consistent finding in a British veteran sample. Previous literature has surmised that variation in PTSD exists between the US and UK military populations due to cultural and socio-political factors (Richardson, Frueh & Acierno, 2011). However, the findings in this study would suggest that such factors may not be important when considering the relationship between PTSD and morally injurious events.

There was a strong positive correlation between the measure of exposure to morally injurious events and the measure of PTSD. Therefore the strength between these two variables can be identified as strong. This may reflect the cross-over in symptoms that are said to be evident in both moral injury presentations and PTSD (Currier et al., 2015). The final regression model accounted for 42% (R^2 Adjusted) of the variance which is quite high for one variable when compared to other studies which have investigated moral injury (Bryan et al., 2014), indicating that PTSD is an important factor. However, it is acknowledged that 57% of the variance is not explained by this model and therefore additional variables, not accounted for in this research, are likely to be involved. It has been hypothesised previously that the type of traumatic event can have an influence on the course of PTSD development and subsequent psychological sequelae in veterans (Jakob, Lamp, Rauch, Smith & Buchholz, 2017). Sexual trauma in particular, has been identified as having a strong link with both PTSD and feelings of guilt and shame among serving military personnel (Nazarov et al., 2015). In a US study of veterans accessing healthcare, 20% of females and 1% of males reported having experienced at least one incident of military sexual trauma during their service (Department of Veterans Affairs MST Support Team, 2008). Given the close relationship between PTSD and moral injurious events it is possible that the type of morally injurious event is also relevant in this context. This was not measured or captured in the data in this study and thus it is not possible to say with certainty, but it could be that this is one of the variables accounting for the unexplained variance in this model.

Previous research into morally injurious events does not predominantly differentiate between shame and guilt, not recognising these as separate emotions with their own psychological components (Farnsworth et al., 2014). In this study shame and guilt proneness were considered as separate variables with their own measures. There was a clear difference between the two variables in terms of their levels of significance, which provides further

evidence for the need to continue assessing guilt and shame proneness as separate constructs. As precision of the model was improved by repeating the regression analysis with only the significant variables, guilt proneness was no longer significant. This indicated that in isolation, there was no significant relationship between guilt proneness and exposure to morally injurious events in this sample.

As a construct, moral injury was developed to explain the shame and guilt based disturbances that some veterans experience (Frankfurt & Frazier, 2016). There is however, no existing measure of the emotions of guilt and shame for a veteran population. The findings in this study, using a measure of proneness, identify that within this sample there was no relationship between the proneness to experiencing guilt and shame and exposure to morally injurious events. The TOSCA was identified as an appropriate measure for this purpose as it has been used in previous research with a veteran population (Leskela et al., 2002), and confirmatory factor analysis did support it as a measure of guilt and negative self-evaluation (Fontaine et al., 2001). However, due to the focus on civilian scenarios within the measure it is possible that it is not specific or sensitive enough to a military context and population.

Clinical implications

The findings of this research support a relationship between exposure to morally injurious events and PTSD in a combat veteran population. This indicates that when working with military veterans who have PTSD, clinicians should also be considering and asking veterans about their exposure to morally injurious events. Previous literature has identified that too often clinicians assume that life-threatening war zone experiences are sufficient enough to explain an individuals' presentation (Litz, Lebowitz, Gray & Nash, 2016), therefore neglecting the morally injurious events which lack a fear-based stressor. It is also relevant for clinicians to consider whether existing psychological interventions effectively address the unique set of post-traumatic responses evident following exposure to morally injurious events

(Currier et al., 2015). Supporting veterans with their recovery from morally injurious events requires consideration of their moral values that have been transgressed through the experience. Litz et al. (2016) identify that morally injurious events, in particular, require a different mechanism of change within therapy that focuses on forgiveness and compassion. This is in contrast to the sense of safety, mastery and confidence which they argue is required for healing following a trauma involving threat to life (Litz et al., 2016).

Guidelines from the National Institute of Health and Care Excellence (NICE) identify cognitive behavioural therapy (CBT) as the treatment for PTSD (NICE, 2005). Within this CBT often involves the use of cognitive re-structuring for distorted beliefs and homework focused on gathering information to challenge these beliefs. This technique however, does not account for exposure to morally injurious events where the individual is the perpetrator and the beliefs about the transgression are therefore accurate and appropriate (Litz et al., 2016). This is one example of where traditional CBT may not sufficiently address the needs of those exposed to morally injurious events. Adaptive Disclosure (AD) is an intervention in the US that has been designed to account for the differences found in veterans exposed to morally injurious events. It encompassed traditional CBT approaches but furthers these, tailoring the intervention to the mechanisms of change required for those exposed to morally injurious events. AD has, so far, received little attention in the treatment of UK veterans.

Acceptance and Commitment Therapy (ACT) is another third wave approach that focuses on the exploration of values (Nieuwsma, Walser, Farnsworth, Drescher, Meador & Nash, 2015). This intervention may also be beneficial for professionals to consider when working with moral injury and supporting veterans to re-gain a meaningful and values-based life. The principles of ACT have been identified in research as being relevant to the therapeutic approach to moral injury, although its efficacy and effectiveness have yet to be investigated (Nieuwsma et al., 2015).

One of the clear recommendations from NHS England is that competent assessments and specialist interventions should be developed based on evidence-based practice (Bashford et al., 2016). In order to be able to assess for exposure to morally injurious events it may help clinicians to firstly develop their awareness of what constitutes a transgression of moral values and to have an understanding of the presenting symptoms that may be indicators of the presence of a moral injury. This may be done through accessing existing research, through training, or carrying out research in this area. By exposing themselves to developments in the field of military and veteran psychology, clinicians can ensure they are best informed and therefore delivering evidence-based psychological interventions. It would also be of benefit for clinicians to include within their outcome measures a screening tool for exposure to morally injurious events. The findings of this study indicate that other variables are involved in the relationship between PTSD and exposure to morally injurious events. It is beyond the scope of this study to hypothesise what these other factors are however, clinicians and those conducting future research may benefit from remaining open to investigating this. Particularly when assessing veterans presenting with PTSD, it might be of benefit to consider the type of trauma that they have experienced (Jakob et al., 2017). This may be done through semi-structured interview questions which specifically ask about moral values, events during combat and the exact type of traumatic event experienced, at the psychological assessment phase.

Limitations

PTSD was shown to have a strong relationship with exposure to morally injurious events, however; due to the cross-sectional design of this study it is not possible to determine causality, given this study was not designed to test such an assumption. The data was collected during one specific time frame in a participant's life; with no baseline data to compare to. It is a limitation of this study, therefore, that it is not possible to determine whether symptoms of either PTSD or exposure to morally injurious events were present prior to or post combat

experience. Without baseline data and a detailed history of each participant it is also not possible to infer whether the symptoms reported were due to combat experiences or pre-dated active service.

Directions for Future Research

Little is known about the effects of exposure to morally injurious events over time. When transitioning back to civilian life, veterans also face a complex cultural transition (Cooper, Caddick, Godier, Cooper & Fossey, 2016), which involves a shift from the military norms and values to those of society (Thompson et al., 2016). The values of society may not support some of the experiences veterans faced during combat, taking the life of another is one example. Over time this could result in increasing inner conflict. Potentially this conflict may lead to a moral injury as veterans move towards adopting the values of the society in which they now live, and the realisation of previous events and the incompatibility with societal norms. As such it would be relevant for future research to consider the role of transition and societal values in the development of moral injury using a longitudinal research design.

An improved understanding of the moral injury construct and what effect exposure to morally injurious events has on veterans would offer greater insight into what is needed to develop psychological interventions that successfully address all of the needs of veterans. This research identified that exposure to morally injurious events (as measured by the MIQ-M) is different to PTSD (as measured by the PCL-M) and thus PTSD interventions may not fully target the needs of veterans with these difficulties. Additional research should consider alternative psychological therapies, more appropriate to the needs of those who have been exposed to morally injurious events, and develop an evidence base for targeted psychological interventions. Future research should also consider what other variables may be pertinent to include, for example, previous trauma and type of traumatic event.

Conclusion

Despite the limitations, this study has provided further evidence in support of the relationship between PTSD and exposure to morally injurious events. The findings indicated a strong relationship between PTSD and exposure to morally injurious events in British veterans that had experienced combat deployment. This finding is consistent with previous US literature (Drescher et al., 2011). Guilt and shame proneness did not yield a significant relationship with exposure to morally injurious events. Moral injury is a construct that is currently still in its infancy (Dombo et al, 2013) and further research is needed to develop a thorough understanding of its psychological sequelae. This research may provide evidence for further consideration of how to approach the investigation of exposure to morally injurious events in veterans. Clinicians working with veterans with PTSD will find it helpful to consider whether the individual has been exposed to morally injurious events and subsequently consider this when planning psychological interventions.

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Table 1. Demographic data: Gender, Length of Service and Previous Therapy frequencies and percentage of sample.

		n	Percentage (%)
Gender	Male	99	95.2
	Female	5	4.8
Length of Service	0-4 years	4	3.8
	Over 4 years	100	96.2
Previous Therapy	Yes	36	34.6
	No	68	65.4

Table 2. Descriptives for Criterion (MIQ-M) and Predictor Variables (PCL-M, TOSCA Guilt, TOSCA Shame) including mean, standard deviation (SD) and range.

	<i>Mean</i>	<i>SD</i>	<i>Minimum - Maximum</i>
MIQ-M	36.75	10.12	19 – 62
PCL-M	49.67	17.30	17 – 85
TOSCA Guilt	40.71	7.90	11 – 53
TOSCA Shame	30.61	9.15	12 – 53

Note: MIQ-M (Moral Injury Questionnaire – Military Version), PCL-M (PTSD Checklist – Military Version), TOSCA Guilt (Test of Self-conscious Affect – guilt subscale), TOSCA Shame (Test of Self-conscious affect – shame subscale).

Table 3. Pearson's correlation matrix for criterion, predictor and control variables:
MIQ-M, PCL-M, TOSCA Guilt, TOSCA Shame, Age, Gender, Length of Service
and Previous Therapy

<i>Variable</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1.MIQ-M	-							
2.Age	-.14	-						
3.Gender	.12	-.27	-					
4.Length of Service	-.14	.25	-.19	-				
5.Previous Therapy	-.32	-.03	.16	-.04	-			
6.PCL-M	.65**	-.06	.08	-.08	-.48	-		
7.Guilt	-.06*	-.10	.13	-.03	-.05	.09	-	
8.Shame	.33	-.16	.22	-.03	-.02	.44	.44	-

* $p < 0.05$

** $p < 0.01$

Note: MIQ-M (Moral Injury Questionnaire – Military Version), Age (years), Gender (male, female or other), Length of service (0-4 or over 4 years), Previous therapy (yes or no), PCL-M (PTSD Checklist – Military Version), TOSCA Guilt (Test of Self-conscious Affect – Guilt subscale), TOSCA Shame (Test of Self-conscious affect – shame subscale).

Table 4. Multiple regression model for predictors of MIQ-M: Age, Gender, Length of Service, Previous Therapy, PCL-M, TOSCA Guilt, TOSCA Shame. Standard and un-standardised coefficients, significance values and confidence intervals.

	<i>B</i>	<i>SE B</i>	β	<i>Sig.</i>	<i>95% CI</i>	
					<i>Lower</i>	<i>Upper</i>
Constant	36.92	11.38		.002	14.32	59.51
Age	-.07	.08	-.08	.324	-.22	.07
Gender	2.01	3.79	.04	.597	-5.51	9.53
Length of Service	-3.99	4.08	-.08	.330	-12.10	4.11
Previous Therapy	-1.32	1.91	-.06	.491	-5.12	2.47
PCL-M	.33	.06	.56	.001	.21	.45
TOSCA Guilt	-.24	.11	-.19	.028	-.46	-.03
TOSCA Shame	.16	.11	.14	.156	-.06	.37

Note: $R^2 = .47$; Adjusted $R^2 = .43$

Table 5. Multiple regression model for significant predictor of MIQ-M, TOSCA Guilt and PCL-M. Standard and un-standardised coefficients, significance values and confidence intervals.

	<i>B</i>	<i>SE B</i>	β	<i>Sig.</i>	95% CI	
					Lower	Upper
Constant	23.64	4.37		.000	14.98	32.31
PCL-M	.38	.04	.65	.000	.30	.47
TOSCA Guilt	-.15	.10	-.12	.12	-.34	.04

Note: $R^2 = .44$; Adjusted $R^2 = .43$